January 2002

Barataria Barrier Island Complex Project: Pelican Island and Pass La Mer to Chaland Pass (BA-38)

Project Status

Approved Date: 2002
Project Area: 868 acres
Net Benefit After 20 Years: 322 acres
Project Type: Barrier Island Restoration
Cost: $54.3 million
Status: Engineering and Design

Location

The project is located in two areas in the Plaquemines Barrier Island/Shoreline System. The Pelican Island segment lies between Fontanelle Pass and Scofield Pass in the Barataria Basin. It is approximately 8 miles south of Sunrise, Louisiana. The other segment lies between Pass La Mer and Chaland Pass, approximately 15 miles south of Diamond, Louisiana. Both segments are in south Plaquemines Parish, Louisiana.

Problems

Wetlands, dune, and swale habitats within the project area have undergone substantial loss due to subsidence, sea-level rise, oil and gas activities (e.g., pipeline construction), and marine and wind induced shoreline erosion (i.e., gulfside and bayside). Marine processes acting on the abandoned deltaic headlands rework and redistribute previously deposited sediment. In two areas along an oil and gas access canal, the shoreline has receded and decreased to a critical width that is susceptible to breaching during storms. Storm return frequency is approximately 8.3 years for the Barataria Shoreline, and because approximately 100 feet of shoreline is eroded with each storm, shorelines of 100 feet or less are considered in eminent danger of breaching.

A recent aerial photograph taken in the project's vicinity is shown above.

Restoration Strategy

The project's primary goals are 1) to prevent breaching of the barrier shoreline by increasing its width and average height and 2) to protect and create dune, swale, and intertidal marsh habitats.

Two construction alignments are being considered. The landward alternatives would involve construction north of the existing gulf shoreline. Preliminary analyses suggest that the landward alignments would maintain their structural integrity longer, and create more habitat than the seaward alternatives; however, these alternatives would impact existing marsh by the placement of dredged materials for the purpose of dune creation. The figures listed above for "Project Area" and "Net Benefit After 20 Years" assume the landward alternatives would be employed in both segments of the project.

The seaward construction alignments would involve the majority of dredged material being placed gulfward of the existing beach faces, with back-barrier marsh creation occurring only in existing open water areas. This construction alternative appears to be more susceptible to storm impacts and loss of material to longshore transport. The project area for the seaward alternatives would include 882 acres, and the net benefit after 20 years is projected to be 184 acres.

Semi-confinement of fill material with containment dikes may be necessary. If necessary, these structures will be constructed at the terminal ends of the sub-reach to reduce losses of sand from the project area and minimize shoaling of the adjacent passes. If constructed, subsequent monitoring will determine whether these containment dikes will be permanent or temporary. Created acres under both design alternatives would be planted with vegetation, and sand fencing would be constructed to maximize sand retention.

Progress to Date

This project was selected for Phase I (engineering and design) funding at the January 2002 Breaux Act Task Force meeting. It is included as part of Priority Project List 11.

For more project information, please contact:

Federal Sponsor:
National Marine Fisheries Service
Baton Rouge, LA
(225) 389-0508

Local Sponsor:
Louisiana Department of Natural Resources
Baton Rouge, LA
(225) 342-7308

Barataria Barrier Island Complex Project: Pelican Island (BA-38)

Project Boundary

USGS science for a changing world

0.25 0 0.25 0.5 Miles

0.25 0 0.25 0.5 0.75 Kilometers

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quadrangles

Map Date: March 10, 2002
Map ID: 2002-11-247

Barataria Barrier Island Complex Project: Pass La Mer to Chaland Pass (BA-38)

Project Boundary

USGS science for a changing world

0.25 0 0.25 0.5 Miles

0.25 0 0.25 0.5 0.75 Kilometers

Map Produced By:
U.S. Department of the Interior
U.S. Geological Survey
National Wetlands Research Center
Coastal Restoration Field Station

Background Imagery:
1998 Digital Orthophoto Quarter Quandrangles

Map Date: March 10, 2002
Map ID: 2002-11-246